GLOSSARY

AFBC	Atmospheric Fluidized-Bed Combustion, a type of coal plant.
AFV	Alternative Fuel Vehicle -- a vehicle which runs on a fuel other than gasoline or diesel. Fuels include methanol, ethanol, biodiesel, electricity, hydrogen, natural gas, synthetic natural gas, and liquefied petroleum gas.
AGC	Automatic generation control
alternate energy	Energy sources which reduce dependence on imported petroleum. Hawaii's alternate energy supplies include coal, landfill gas, geothermal, hydropower, municipal solid waste, solar, and wind energy.
alternative fuel vehicle	A vehicle which runs on a fuel other than gasoline or diesel
alternative fuels	Vehicle fuels that displace gasoline or diesel. They include methanol, ethanol, biodiesel, electricity, hydrogen, natural gas, synthetic natural gas, and liquefied petroleum gas.
ANS	Alaska North Slope -- the current oil-producing area of Alaska.
ANSI/ASCE7	American National Standards Institute/American Society of Civil Engineers wind loading standard
ANSI-7	American National Standards Institute wind loading standard
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
bagasse	The crushed fibers that remain after the sugar has been removed from the sugarcane in processing. Used as a boiler fuel.
barrel	A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons.
baseload capacity	The generating equipment normally operated to serve loads on an around-the-clock basis.
baseload plant	An electric power plant which is normally operated to take all or part of the minimum load of a system, and which consequently produces electricity at an essentially constant rate and runs continuously. These units are operated to maximize system mechanical and thermal efficiency and minimize system-operating costs.
bbl	The abbreviation for barrel -- a volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons.
BEA	Bureau of Economic Analysis
biomass fuels	Wood, agricultural wastes such as bagasse, garbage or municipal solid waste, and alcohol fuels are primary examples. Biomass energy sources are essentially unprocessed; they are burned as received to produce thermal energy. Examples are wood, bagasse, and garbage. Biofuels result from the processing of biomass energy sources. In general, biofuels have a greater energy density and are more easily transported and used. Examples are wood chips, pellets, briquettes, alcohol fuels, and refuse-derived fuel.
BLS	Bureau of Labor Statistics
Btu	British Thermal Unit - a standard unit for measuring the quantity of heat energy equal to the quantity of heat required to raise the temperature of one pound of water by one degree Fahrenheit.
CAFE	Corporate Average Fuel Efficiency

capacity	The full-load continuous rating of a generator, prime mover, or other electric equipment under specified conditions as designated by the manufacturer.
carbon dioxide (CO_2)	The greenhouse gas whose concentration is being most affected directly by human activities. CO_2 also serves as the reference to compare all other greenhouse gases (see carbon dioxide equivalents). The major source of CO_2 emissions is fossil fuel combustion. CO_2 emissions are also a product of forest clearing, biomass burning, and non-energy production processes such as cement production. Atmospheric concentrations of CO_2 have been increasing at a rate of about 0.5% per year and are now about 30% above pre-industrial levels.
carbon dioxide equivalent (CDE).	A measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). carbon dioxide equivalents are commonly expressed as "million metric tons of carbon dioxide equivalents (MMTCDE)" or "million short tons of carbon dioxide equivalents (MSTCDE)" he carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP.
CCAP	Climate Change Action Plan -- an international effort to reduce the emissions of greenhouse gases believed to cause global warming.
CH_4	Methane, a greenhouse gas
CIA	Central Intelligence Agency's
climate	The average weather (usually taken over a 30-year time period) for a particular region and time period. Climatic elements include precipitation, temperature, humidity, sunshine, wind velocity, phenomena such as fog, frost, and hail storms, and other measures of the weather.
climate change	A change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods
CO	Carbon monoxide
CO_2	Carbon dioxide
coal	A black or brownish-black solid combustible substance formed by the partial decomposition of vegetable matter without access to air.
cost	The amount paid to acquire resources, such as plant and equipment, fuel, or labor services.
crude oil	A mixture of hydrocarbons that existed in liquid phase in underground reservoirs and that remains liquid at atmospheric pressure after passing through surface separating facilities.
CT	Combustion turbine
DBEDT	State of Hawaii Department of Business, Economic Development & Tourism
DC	Direct current
defacto population	Sum of resident population and visitor census, less residents living elsewhere.
demand (electricity)	The rate at which electric energy is delivered to or by a system, part of a system, or piece of equipment, at a given instant or averaged over any designated period of time.
demand-side management (DSM)	Utility activities aimed at modifying the customer's use of energy to produce desired changes in energy demand.
DLNR	State of Hawaii Department of Land and Natural Resources

DOE	United States Department of Energy
DOH	State of Hawaii Department of Health
DSM	demand-side management
Dual-Train Combined Cycle (DTCC)	Dual-Train Combined Cycle. An oil-fired power plant consisting of two gas turbines each driving a generator which are connected to a steam recovery unit. The steam recovery unit uses the exhaust heat of the gas turbines to make steam to drive a third generator.
E10	Fuel Blend of 10% Ethanol and 90% Gasoline
E85	Fuel Blend of 85% Ethanol and 15% Gasoline
EAG	Externalities Advisory Group
EEP	Energy Emergency Preparedness
EIA	U.S. Department of Energy's Energy Information Administration
EIIS	Environmental Impact Information Sheet
electric utility	An enterprise engaged in the generation, transmission, or distribution of electric energy primarily for use by the public and that is the major power supplier within a designated service area.
electricity generation	The process of producing electric energy or transforming other forms of energy into electric energy. Also the amount of electric energy produced or expressed in Watthours (Wh).
emissions	The release of pollutants and greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time.
energy	The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatt-hours, while heat energy is usually measured in British thermal units.
ENERGY 2020	A multi-sector energy analysis computer model for energy forecasting and policy assessment. ENERGY 2020 simulates the major departments of regulated electric and gas utilities, other supply sources, and the major components of energy demand, including transportation demand, in a single comprehensive framework connected by several important feedback responses.
Energy Emergency Preparedness (EEP) Program	A program that prepares Hawaii to be prepared to effectively manage energy emergencies and threats to its energy security.
energy source	The primary source that provides the power that is converted to electricity through chemical, mechanical, or other means. Energy sources include coal, petroleum and petroleum products, gas, water, uranium, wind, sunlight, geothermal, and other sources.
energy supply	Consists of domestic and foreign sources of crude oil, refineries, coal, renewable energy supplies, and alternate energy supplies.
EPA	Environmental Protection Agency
EPACT	National Energy Policy Act of 1992

ERC	State of Hawaii Energy Resources Coordinator (a duty assigned to the Director of the DBEDT)
ERTD	Energy, Resources, and Technology Division, State of Hawaii Department of Business, Economic Development & Tourism
ethanol	An alcohol transportation fuel produced on the Mainland primarily from corn. In Hawaii, ethanol could be made from sugarcane molasses, and several companies are also considering producing ethanol from yard and wood wastes or mixed waste paper.
EV	Electric Vehicle
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission -- The federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy.
fossil fuel	Any naturally occurring organic fuel, such as petroleum, coal, and natural gas.
fossil fuel plant	A power plant using coal, petroleum, or gas as its source of energy.
fuel	Any substance that can be burned to produce heat; also, materials that can be fissioned in a chain reaction to produce heat.
gasohol	A blend of finished motor gasoline and alcohol (generally ethanol, but sometimes methanol) limited to ten percent by volume of alcohol.
generation (electricity)	The process of producing electric energy by transforming other forms of energy; also, the amount of electric energy produced, expressed in Watthours (Wh).
generator	A machine that converts mechanical energy into electrical energy.
generator capacity	The full-load continuous rating of a generator, prime mover, or other electric power production equipment under specific conditions as designated by the manufacturer.
geothermal energy	Geothermal energy is the natural heat of the earth stored deep below the earth's surface. It can be in the form of steam, hot liquid, or hot dry rock. Wells drilled deep into the ground bring steam and hot water to the surface. The steam, or steam produced by the fluids in a heat exchange process, is used to drive a turbine generator to make electricity. Modern technology allows spent geothermal fluids and non-condensable gases to be reinjected back into the ground, eliminating surface disposal and air pollution
geothermal plant	A plant in which the prime mover is a steam turbine driven either by steam produced from hot water or by natural steam that derives its energy from heat found in rocks or fluids at various depths beneath the earth’s surface.
Gigawatt (GW)	One billion Watts
Gigawatthour (GWh)	One billion Watthours
global warming	An increase in the near surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is most often used to refer to the warming predicted to occur as a result of increased emissions of greenhouse gases. The IPCC recently concluded that increased concentrations of greenhouse gases are causing an increase in the Earth's surface temperature.

global warming potential (GWP)	The index used to translate the level of emissions of various gases into a common measure in order to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations. GWPs are calculated as the ratio of the radiative forcing that would result from the emissions of one kilogram of a greenhouse gas to that from emission of one kilogram of carbon dioxide over a period of time (usually 100 years). Based upon a recent reevaluation, the GWP for CO_2 is 1, for CH_4 it is 24.5, and for N_2O it is 320.
greenhouse effect	The effect produced as greenhouse gases allow incoming solar radiation to pass through the Earth's atmosphere, but prevent most of the outgoing infrared radiation from the surface and lower atmosphere from escaping into outer space. This process occurs naturally and has kept the Earth's temperature about 59 degrees F warmer than it would otherwise be. Current life on Earth could not be sustained without the natural greenhouse effect.
greenhouse gas	Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), halogenated fluorocarbons (HCFCs), ozone (O3), perfluorinated carbons (PFCs), and hydrofluorocarbons (HFCs).
Gross State Product	An economic measure of the value of all the goods and services produced in a state in a year.
GSP	Gross State Product
GW	Gigawatt - one billion Watts.
GWh	Gigawatt Hour - one billion Watt-hours.
GWP	Global warming potential
Hawaii Climate Change Action Plan	Phase II of the Program for Developing, Implementing, and Evaluating a Greenhouse Gas Reduction Strategy for the State of Hawaii, the first iteration of a *Hawaii Climate Change Action Plan* was completed in November 1998. The plan does not set specific goals. It is intended to be a catalyst for discussions by Hawaii's people about their involvement in future efforts to reduce emissions and to adapt to climate change. The major recommendation of the first plan is to develop consensus as to Hawaii's goals for greenhouse gas emission reductions.
Hawaii Energy Strategy Program	The Hawaii Energy Strategy (HES) program was initiated on March 2, 1992 under a Cooperative Agreement with the United States Department of Energy (USDOE). The program was designed to increase understanding of Hawaii's energy situation and to produce recommendations to achieve the state energy objectives of dependable, efficient, and economical state-wide energy systems capable of supporting the needs of the people, and increased energy self-sufficiency.
HC&S	Hawaiian Commercial & Sugar Company
HCPC	Hilo Coast Power Company
HECO	Hawaiian Electric Company, Inc. -- the electric utility serving Oahu.
HEI	Hawaiian Electric Industries, Inc. -- the holding company which owns HECO, HELCO, and MECO.
HELCO	Hawaiian Electric Light Company, Inc. - the electric utility serving the Island of Hawaii.
HES	Hawaii Energy Strategy
HES 1995	Hawaii Energy Strategy 1995
HEVDP	Hawaii Electric Vehicle Demonstration Program

HNEI	University of Hawaii's Hawaii Natural Energy Institute
H-POWER	Honolulu Project of Waste Energy Recovery - a waste-to-energy power plant producing 46 MW of electricity for sale to HECO at Barbers Point, Oahu.
HRS	Hawaii Revised Statutes
HRS	Heat recovery system – a system designed to make use of waste heat from combustion
HSFO	High-Sulfur Fuel Oil. Has a sulfur content greater than 5%.
hydroelectric plant	A plant in which turbine generators are driven by falling water.
hydropower	In the simplest form of hydropower, flowing water turns a turbine, which then turns a generator, which produces electricity. The available power depends on the amount of water flowing, and also the pressure, or "head", of the water. Head can be increased by building dams or selecting sites with steep terrain. Pumped storage hydropower plants pump water back up from a lower reservoir to an upper reservoir where it is stored and then released when needed to provide power. This is mostly used for short periods to meet peak power demands.
independent power producer (IPP)	A cogenerator which produces and sells firm power under contract to the utilities.
Integrated Resource Planning (IRP)	An approach to regulated utility planning to meet consumer energy needs in an efficient and reliable manner at the lowest reasonable cost by evaluating all potential energy options as well as the social, environmental and economic costs of these options.
Intergovernment-al Panel on Climate Change (IPCC)	A panel of international climate scientists jointly established by the World Meteorological Organization and the United Nations Environment Program in 1988 to (i) assess available information on climate change, (ii) assess the environmental and socio-economic impacts of climate change, and (iii) formulate response strategies.
internal combustion power plant	A plant in which the prime mover is an internal combustion engine. An internal combustion engine has one or more cylinders in which the process of combustion takes place, converting energy released from the rapid burning of a fuel-air mixture into mechanical energy. Diesel or gas-fired engines are the principal types used in electric plants.
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer -- A cogenerator which produces and sells firm power under contract to the utilities.
IRP	Integrated Resource Planning
ISO	Independent System Operator
KE	Kauai Electric Division of Citizens Utilities -- the electric utility serving Kauai. A cogenerator which produces and sells firm power under contract to the utilities.
KGP	Kapaa Generating Partners
Ktherms	kilotherms -- one thousand therms
kW	kilowatts -- one thousand Watts
kWh	kilowatt hours -- one thousand Watt hours

Kyoto Protocol	A Protocol to the United Nations Framework Convention on Climate Change agreed by participants at the Kyoto Summit (Conference of Parties 3) in December 1997. It commits industrialized countries to firm reductions in greenhouse gas emissions. The United States is to reduce emissions by 7% below 1990 levels by the years 2008-2010. The U.S. signed the Protocol in November 1998, but it has not been submitted by the Administration to Congress for ratification due to Congressional concerns about the lack of requirements for emission reductions by developing nations.
landfill methane	Methane created by the decomposition of municipal solid waste in landfills. At Kapaa Landfill on Oahu, landfill methane is collected and piped to a combustion turbine generator at Kapaa Quarry for use as a fuel.
LF	Landfill (methane)
LNG	Liquefied natural gas
LPG	Liquefied petroleum gas (propane)
LSC	Load service capability
LSFO	Low-sulfur fuel oil (residual fuel oil with a sulfur content of <0.5%)
M85	A fuel blend of 85% methanol and 15% gasoline.
mb/d	thousand barrels per day
MECO	Maui Electric Company, Inc. -- the electric utility serving the islands of Maui, Molokai, and Lanai (Maui County).
methane (CH_4)	A hydrocarbon that is a greenhouse gas with a global warming potential most recently estimated at 24.5. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and oil, coal production, and incomplete fossil fuel combustion. The atmospheric concentration of methane has been shown to be increasing at a rate of about 0.6% per year and the concentration of about 1.7 parts per million by volume (ppmv) is more than twice its preindustrial value. However, the rate of increase of methane in the atmosphere may be stabilizing.
Model Energy Code	Design requirements for minimally efficient energy use in new and renovated buildings. The Code is meant to reduce energy use and costs. It was developed by the DBEDT ERT Division for adoption by Hawaii's four counties.
mpg	Miles per gallon – a measure of vehicle fuel efficiency
MSFO	Medium-sulfur fuel oil (residual fuel with a sulfur content >0.5% but <5%)
MSW	Municipal Solid Waste -- refuse burned as a fuel for electricity generation and to reduce land fill volume.
MW	megawatt - a million Watts
MWh	Megawatt Hour -- a million Watthours
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards

National Energy Policy Act of 1992 (EPACT)	Signed by President Bush on October 24, 1992, EPACT includes provisions related to state and county energy management, including model energy code, home energy efficiency ratings and energy efficient mortgages, efficient government buildings, integrated resource planning, tax provisions, renewable energy, alternative fueled vehicles, and climate change action plan.
natural gas	A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in porous geological formations beneath the earth's surface, often in association with petroleum. The principal constituent is methane.
NELHA	Natural Energy Laboratory of Hawaii Authority
nitrous oxide (N_2O)	A powerful greenhouse gas with a global warming potential of 320. Major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.
non-utility gas	Propane or propane-based LPG distributed by delivery trucks to the consumer's tank or the consumer brings his or her tank to a refueling station. Not regulated by the Public Utilities Commission.
NREL	National Renewable Energy Laboratory
NUG	Non-Utility Generator
ocean thermal energy conversion (OTEC)	The technology for generating electricity from different ocean temperatures. OTEC makes use of the difference in temperature between the warm surface water of the ocean and the cold water in depths below 2,000 feet to generate electricity. As long as a sufficient temperature difference (about 40 degrees Fahrenheit) exists between the warm upper layer of water and the cold deep water, net power can be generated.
OFS	Oil-fired steam – uses oil beneath a boiler to produce steam to power a generator
OPEC	Organization of Petroleum Exporting Countries
OTEC	Ocean Thermal Energy Conversion
peak demand	The maximum load during a specified period of time.
petroleum	A mixture of hydrocarbons existing in the liquid state found in natural underground reservoirs, often associated with gas. Petroleum includes asphalt, fuel oil No. 2, No. 4, No. 5, No. 6; topped crude; kerosene; jet fuel; naphtha, LPG, and other products.
PGV	Puna Geothermal Venture -- operator of the geothermal power plant on the Island of Hawaii.
photovoltaics (PV)	A renewable energy technology that converts the sun's light, not its heat, directly into electricity. Sunlight shining on specially treated cells or film produces direct-current (DC) electricity. The solar cells are made of thin layers of material, usually silicon. The layers, after treatment with special compounds, have either too many or too few electrons. When light strikes a sandwich of the different layers, electrons start flowing, and an electric current is produced.
PICHTR	Pacific International Center for High Technology Research
PM_{10}	Particles less than 10 microns in diameter in emissions from power plants
PRB	Performance-based rate making
psig	Pounds per square inch (gauge)
PUC	Public Utilities Commission

pumped-storage hydroelectric plant	A plant that usually generates electric energy during peak-load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in a power plant at a lower level.
PURPA	Public Utilities Regulatory Policies Act of 1978
PV	Photovoltaics
PVUSA	Photovoltaics for Utility-Scale Applications
RD&D	Research, Development, and Demonstration
READ	Research and Economic Analysis Division
Regional Economic Models, Inc. (REMI)	A macroeconomic model composed of five sectors or "linkages": output, demand, supply, market share and wage.
REMI	Regional Economic Models, Inc.
resource supply curve (RSC)	A computer model that provides the means to compare different generating options with each other, given similar economic assumptions and evaluation methodologies.
RFP	Request for Proposals
RPS	renewable portfolio standard
sales, electricity	The amount of kilowatt-hours sold in a given period of time; usually grouped by classes of service, such as residential, commercial, industrial, and other. Other sales include public street and highway lighting, other sales to public authorities and railways, and interdepartmental sales.
sector, commercial	Includes a variety of business facilities such as hotels, resorts, large and small offices, restaurants, hospitals, warehouses, schools, and others.
sector, energy	A system of classifying energy use divided into residential, commercial, industrial, and transportation sectors. These sectors are also grouped into regulated and non-regulated energy sectors.
sector, industrial	Includes oil refining, agriculture and irrigation pumping, food processing and miscellaneous.
sector, residential	Includes all household energy use in single- and multi-family homes.
sector, transportation	Includes air, marine, and ground transportation.
short ton	Common measurement for a ton in the United States. A short ton is equal to 2,000 lbs. or 0.907 metric tons.
SLH	Session Laws of Hawaii
SNG	Synthetic Natural Gas
solar thermal energy	Solar thermal energy is heat energy obtained by exposing a collecting device to the rays of the sun. A solar thermal system makes use of the warmth absorbed by the collector to heat water or another working fluid, or to make steam. Hot water is used in homes or commercial buildings and for industrial processes. Steam is used for process heat or for operating a turbine generator to produce electricity or industrial power.
SRG	Steam recovery generator
sulfur	One of the elements present in varying quantities in fossil fuels which contributes to environmental degradation when fossil fuels are burned.

system (electric)	Physically connected generation, transmission, and distribution facilities operated as an integrated unit.
T&D	Transmission and distribution
TBtu	Tera Btu -- trillion Btu (10^{12})
TCM	Transportation control measure
TGC	The Gas Company. Hawaii's only gas utility.
transmission system (electricity)	An interconnected group of electric transmission lines and associated equipment for moving or transferring electric energy in bulk between points of supply and points at which it is transformed for delivery over the distribution system lines to consumers.
TRC	Total resource cost
turbine	A machine for generating rotary mechanical power from the energy of a stream of fluid (such as water, steam, or hot gas).
U.S. Strategic Petroleum Reserve	The Strategic Petroleum Reserve (SPR) is the nation's first line of defense against an interruption in petroleum supplies. It is an emergency supply of crude oil stored in huge underground salt caverns along the coastline of the Gulf of Mexico. In 1998, Hawaii was granted priority access to enhance the State's energy security.
UH	University of Hawaii
UNFCC	United Nations Framework Convention on Climate Change
United Nations Framework Convention on Climate Change	The UNFCC was adopted at the Rio Environmental Summit in 1992. It was to serve as a basis for future efforts to achieve, through the work of the Conference of the Parties, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This was to be achieved within a timeframe sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable sustainable economic development.
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
VMT	Vehicle miles traveled
Watt	The electrical unit of power. The rate of energy transfer equivalent to 1 ampere flowing under a pressure of 1 volt at unity power factor.
Watt-hour (Wh)	An electrical energy unit of measure equal to 1 watt of power supplied to, or taken from, an electric steadily for 1 hour.
wind power	Harnessing the wind with turbines to produce mechanical power or electricity. The wind turns the blades of a windmill-like machine. The rotating blades turn the shaft to which they are attached. The turning shaft typically can either power a pump or turn a generator, which produces electricity. For producing large amounts of electricity, many machines can be grouped together to form a "wind farm".
ZEV	Zero Emission Vehicle